43. (New) The device of claim 1, wherein said channel means comprises an individual channel for each detection chamber, for providing a dead-end fluid connection between said inlet and each detection chamber.

44. (New) The device of claim 1 comprising at least one laminated layer comprising copper.

45. (New) The device of claim 1 comprising at least one laminated layer comprising aluminum.

46. (New) The device of claim 1 comprising at least one laminated layer comprising silicon.

47. (New) The device of claim 1, wherein said detection means comprises an optically transparent window associated with each detection chamber, through which such signal can be optically detected.

48. (New) The device of claim 1, wherein the at least one binding polymer includes first and second oligonucleotide primers having sequences effective to hybridize to opposite end regions of complementary strands of a selected polynucleotide sequence, for amplifying the sequence by primer-initiated polymerase chain reaction.

49. (New) The device of claim 48, wherein the at least one binding polymer further comprises a fluorescer-quencher oligonucleotide capable of hybridizing to the selected polyucleotide sequence in a region downstream of one of the primers, for producing a detectable fluorescent signal when the selected sequence is present in the sample.

50. (New) The device of claim 1, wherein the at least one binding polymer comprises first and second oligonucleotides effective to bind to adjacent, contiguous regions of a selected polynucleotide sequence.

51. (New) The device of claim 50, wherein the at least one binding polymer comprises a second pair of oligonucleotides which are effective to bind to adjacent, contiguous regions complementary to the regions bound by the first pair of oligonucleotides, for amplification of the regions by ligase chain reaction.

52. (New) The device of claim 1, wherein at least one of the detection chambers additionally comprises an intercalating compound which produces an optically detectable signal upon intercalating a double-stranded polynucleotide.

53. (New) The device of claim 1, wherein said substrate further comprises temperature regulating means for controlling the temperature of each detection chamber.

54. (New) The device of claim 1, wherein said substrate defines at least two such sample-distribution networks.

55. (New) The device of claim 1, wherein the interior of said network is under vacuum.

56. (New) The device of claim 1, wherein at least one of the binding polymers contains a fluorescent dye.

57. (New) The device of claim 1, wherein at least one binding polymer contains a fluorescent dye moiety which produces a detectable signal upon hybridization of the binding polymer to a target polynucleotide sequence.

58. (New) The device of claim 1, wherein at least one binding polymer comprises first and second oligonucleotides effective to bind to adjacent regions of a selected polynucleotide sequence which are separated from each other by one or more intervening bases.